PHASE SEQUENCE SENSOR CKM - 01 INSTRUCTION MANUAL

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DESCRIPTION

The CKM-01 phase sequence sensor device is used to protect devices powered from a three-phase installation (e.g. a motor) from being damage in case of phase voltage switch off. It is because of phase voltage asymmetry or wrong phase sequence. The threshold switch on value is can be adjusted by the user by means of a potentiometer. The system does not protect from voltage drop asymmetry and it is powered from L1 phase. The switch off delay and voltage hysteresis cause the system is resistant to momentary voltage changes.

FEATURES

ی Wrong phase sequence protection,

ی phase fading protection,

ی voltage asymmetry protection,

ی (asymmetry) switch on threshold regulation,

ی switch off delay and voltage hysteresis

ی resistant to momentary voltage drops,

ی momentary voltage fading protection max 10 A capacity,
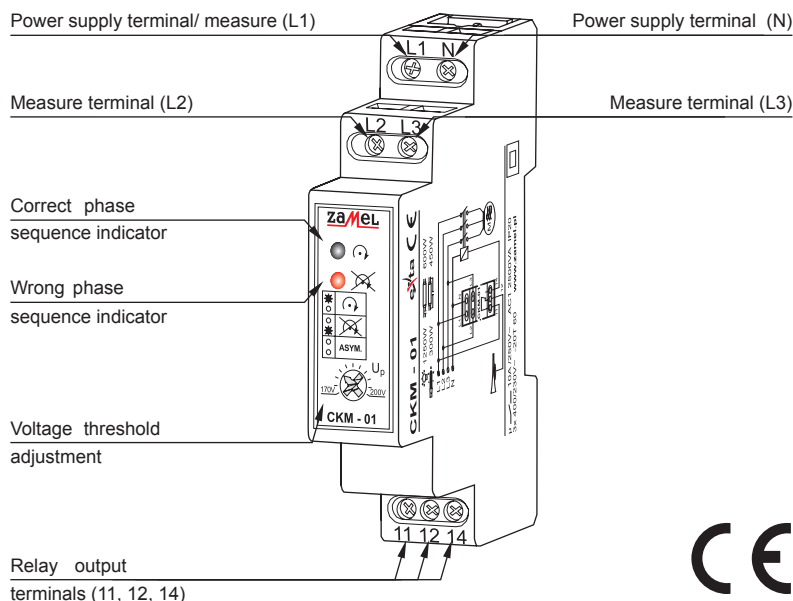
ی monomodular casing,

ی TH-35 DIN rail installation.

TECHNICAL PARAMETERS

CKM - 01	
Supply cables:	L1, N
Input rated voltage / supervised:	230/400 V~
Rated current:	from -15 to +10 %
Rated frequency:	50 / 60 Hz
Znamionowy pobór prądu:	34 mA
Measure terminals:	L1, L2, L3
Correct phase sequence indicator:	LED green
Wrong phase sequence indicator:	LED red
Voltage threshold adjustment:	170 V ÷ 200 V
Voltage hysteresis:	approx. 10 V
Switch on delay t_1:	5 sec -10 sec
Switch off delay t_2:	1sec - 5 sec
Output relay parameters:	1NO/NC - 10 A / 250 V AC1 2500 VA
Number of terminal clamps:	7
Section of connecting cables:	from 0,2 to 2,50 mm²
Ambient temperature range:	from -20 to +60 ºC
Operating position:	free
Mounting:	TH35 rail (PN-EN 60715)
Protection degree:	IP20 (PN-EN 60529)
Protection class:	II
Overvoltage category:	II
Pollution degree:	2
Rated impulse withstand voltage:	2 kV (PN-EN 61000-4-5)
Dimensions:	monomodular (17,5 mm) 90x17,5x66 mm
Weight:	77 g
Reference standards:	PN-EN 60730-1; PN-EN 60730-2-1 PN-EN 61000-4-2,3,4,5,6,11

APPEARANCE

Power supply terminal/ measure (L1)
Power supply terminal (N)
Measure terminal (L2)
Measure terminal (L3)
Correct phase sequence indicator
Wrong phase sequence indicator
Voltage threshold adjustment
Relay output terminals (11, 12, 14)

MOUNTING, FUNCTIONING

1. Disconnect the power supply from the mains by the phase fuse, the circuit-breaker or the switch-disconnector that are joined to the proper circuit,
2. **Check if there is no voltage on connection cables by means of a special measure equipment,**
3. Install CKM-01 device in the switchboard on TH-35 DIN rail,
4. Connect the cables with the terminals according to installing diagram,
5. Switch on the power supply from the mains,
6. Adjust voltage threshold that switches on phase sequence sensor.

After power supply has been applied (from L1 phase) the sensor controls the correct phase order. In case there is a wrong phase sequence, the LED red switches on marked „✕" (outputs 11–12 are closed, the motor is switched off, the alarm is switched on). The LED green switches on in case of a correct phase sequence „☉" (outputs 11–14 are closed, the motor is switched on) and the sensor controls voltage values in particular phase. The relay remains in on position and the controlled load (e.g. motor) is switched on till the voltage value is correct in every phase. In case there is a lack of any of the phases or there is a voltage drop below the adjusted asymmetry threshold the relay is switched off. There is a short time delay in switching off the relay (t_2 from 1 to 5 sec). The device is resistant to momentary voltage drops. Another motor switch on follows (outputs 11–14 are closed) when the voltage is 10 V higher from the adjusted voltage threshold (voltage hysteresis), and after t_1 time (from 5 sec to 10 sec) is over. LED diodes are switched on till every phase voltage is below 50 V.
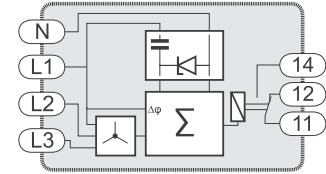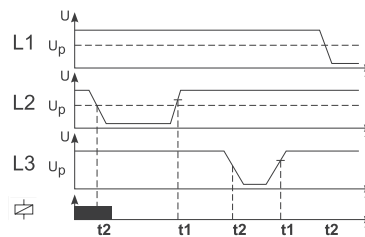
CONNECTING
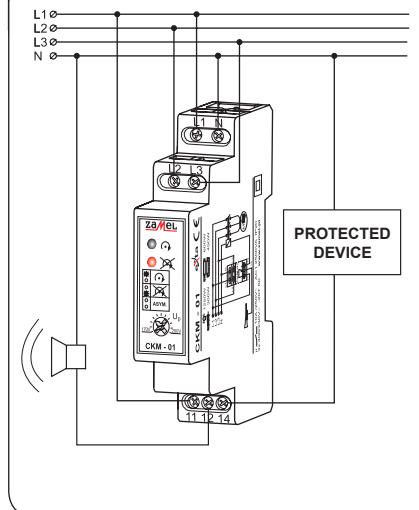
WARNING!

The relay system is powered from L1 phase. The relay switch off time delay depends on output power connected to a three–phase installation. The lack of two phases causes the sensor to switch on.

INNER DIAGRAM

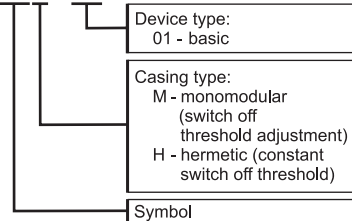## TIME COURSE

SIGNALLING

	SIGNALLING
O O	VOLTAGE ASYMMETRY
✺ O	CORRECT PHASE SEQUENCE INDICATOR
O ✺	WRONG PHASE SEQUENCE INDICATOR

PRODUCT FAMILY

CKM-01 phase sequence sensor belongs to CKX asymmetry sensor family.

CKX - xx

Device type:
01 - basic

Casing type:
M - monomodular (switch off threshold adjustment)
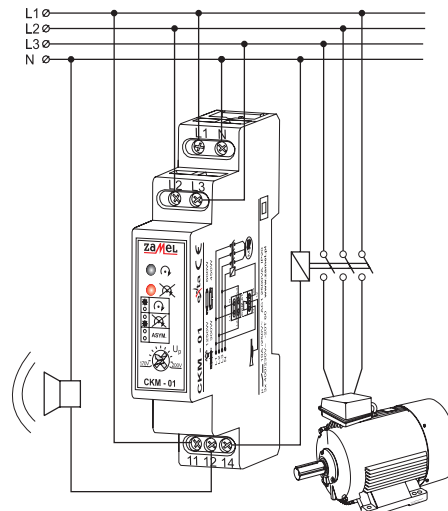H - hermetic (constant switch off threshold)

Symbol

DIMENSIONS
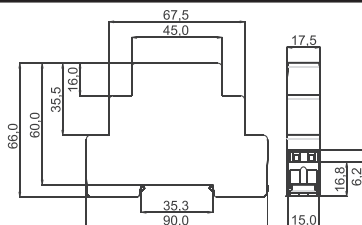
EXAMPLE OF INSTALLATION

The phase sequence sensor protects the motor does not work in case of supply failure. The sensor enables the motor to work only when there is a correct phase sequences.

GUARANTEE CARD

There is 24 months guarantee on the product

Salesman stamp and signature, date of sale